FINAL

PRELIMINARY ASSESSMENT FOR THE
FRED'S AUTO JUNKYARD SITE
LOWER PROVIDENCE TOWNSHIP,
MONTGOMERY COUNTY, PENNSYLVANIA
DUMP SITE NO. PA-3017
EPA ID NO. PAD987378213

EPA WORK ASSIGNMENT NO. 85-12-3JZZ
CONTRACT NO. 68-W8-0085

December 1993

Prepared for:

HAZARDOUS WASTE MANAGEMENT DIVISION
U..S. Environmental Protection Agency

Prepared by:

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Philadelphia, Pennsylvania

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Submitted:

[redacted]

E & E Task Leader

12/30/94

Date

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1. INTRODUCTION

1.1 AUTHORIZATION

The Preliminary Assessment (PA) of the Fred's Auto Junkyard (Fred's Auto) site was performed by Ecology and Environment, Inc. (E & E) under contract number 68-W8-0085 for the United States Environmental Protection Agency (EPA), Region III, Alternative Remedial Contracting Strategy (ARCS), EPA Work Assignment No. 85-12-3JZZ. This PA was conducted under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization act of 1986 (SARA).

1.2 SCOPE OF WORK

The subject of this CERCLA PA investigation is the site of an automobile repair shop, scrap yard, and commercial auto salvage yard located in Lower Providence Township, Montgomery County, Pennsylvania. The purpose of the investigation was to collect information concerning conditions at this site sufficient to assess the threat posed to human health and the environment, and to determine the need for additional action. The scope of the investigation included a review of available file information, interviews with people knowledgeable of previous activities at the site, a comprehensive target survey, and a site reconnaissance visit. Appendix A presents a photographic record of the site visit performed by E & E, Appendix B presents EPA Form 2070-12, and Appendix C presents analytical data associated with homewell samples collected in the study area.

1.3 SUMMARY

The Fred's Auto site is located at 2650 Egypt Road in Lower Providence Township, Pennsylvania. The approximately 4-acre, nearly square site includes a residence, an automobile repair shop, the Crusher-One automobile salvage yard, and a small scrap yard. The repair shop has been operated by Fred Melchiorre since approximately 1955. Crusher-One, a commercial automobile salvage yard, has been operated on site since 1992. The residence has been occupied by various tenants since some time prior to 1950. On-site operations include automobile repair and maintenance, and the crushing of abandoned automobiles using a mobile crushing machine (Ref. 2).

Waste materials currently generated on site include spent automotive motor oil from the auto repair service and used automotive air filters. Waste motor oil is burned as heating oil for the repair garage, and used automotive oil filters from the automobile repair service are burned with other refuse in drums in an area near the garage. A cold solvent parts cleaner was used in the garage from 1963 to 1978. The solvent was reportedly reclaimed by Safety Kleen, a solvent delivery and recycling service, in 1978 (Ref. 2).

Residents within a 4-mile radius of the site receive potable water from community water supply companies and homewells. Several community supply wells owned by the Audubon Water Company (AWC) and homewells in the site study area were found to contain trichloroethylene (TCE) in concentrations exceeding the maximum concentration limit (MCL) of 5.0 μg/L. The homewell that serves the on-site residence was reportedly sampled several years ago and volatile organic compounds (VOCs) were not detected; however, documentation for this sampling event is not available (Refs. 1, 2, 3, 4).

One source of TCE in groundwater in the area has been identified as the Commodore Semiconductor Group (CSG) manufacturing facility, located approximately 0.45 mile south of the site. The CSG facility is on the National Priorities List (NPL). Studies of groundwater flow in the area indicate that the CSG site may not be the sole source of TCE detected in the area wells (Refs. 6, 7, 8).

On August 26, 1993, [redacted] and [redacted] of E & E conducted an inspection of the Fred's Auto site. The field team was accompanied on site by Fred Melchiorre of Fred's Auto Service. No representative of Crusher-One was present during the inspection. The field team observed site conditions and spoke to nearby residents regarding TCE contamination in their wells (Ref. 2).

2. SITE DESCRIPTION

2.1 SITE LOCATION

The Fred's Auto site is located at 2650 Egypt Road in Lower Providence Township, Montgomery County, Pennsylvania (see Figure 2-1). Coordinates for the approximate center of the site are 40°07'45" north latitude and 75°24'45" west longitude. The site can be located by measuring 3/4-inch north and 5-1/4 inches west from the southeast corner of the United States Geological Survey (USGS) 7.5-Minute Series map for the Collegeville, Pennsylvania quadrangle (Ref. 1).

2.2 SITE LAYOUT

The 4-acre, nearly square Fred's Auto site includes a residential property, a garage/ automobile repair shop, the Crusher-One automobile salvage yard, and a small scrap yard. The residential property and automobile repair shop are located approximately 50 feet south of Egypt Road, and the Crusher-One automobile salvage yard is located behind the residential property and automobile repair shop. The scrap yard is located adjacent to Egypt Road, east of the automobile repair shop.

The site is sloped to the south. Runoff from all areas of the site flows downgradient toward fields located south of the site. The ground surface on the residential property and scrap yard areas is covered with long grass. The ground surface in the garage and burn pit area is covered with patches of short grass. The ground surface in the automotive salvage yard area consists of compacted dirt with some gravel (Ref. 2).

Egypt Road forms the northern site boundary, and undeveloped property is located north of Egypt Road. An apple orchard is located immediately south of the site, and a corn field bounds the site to the west and to the east (Ref. 2)

On-Site Residence

The on-site residence is a two-story, single-family home constructed prior to 1950. The on-site residence is served by a homewell drilled in approximately 1975. Another well was drilled when the house was constructed, but this older well is no longer used. Reportedly, the older well became dry when wells were installed for the Washington Country Club golf course, located 0.25 mile west of the site. Wastewater from the house is disposed of through a cesspool located in the back yard downgradient of the wells. Currently, the house is occupied by three persons (Refs. 2, 22).

Garage/Automobile Repair Shop

The automobile repair shop includes a double garage equipped with various tools and equipment for automotive repair and maintenance, a small yard where cars to be repaired are parked, a small shed, a drum storage area, and a burn pit (Ref. 2).

The garage is approximately 75 feet by 25 feet and 10 feet high. The floor is made of concrete. The garage contains equipment for the automobile repair shop including a 125-gallon-capacity cold solvent parts cleaner. This unit is identified as a Magnus Chemical, Model MIJI, LIF, manufactured by Magnus Chemical of Plainfield, New Jersey. The unit is inactive and is reported to contain no solvents (Ref. 2).

During E & E's site visit, eleven 55-gallon steel drums and one steel 200-gallon heating oil storage tank were located on an elevated rack in the drum storage area on the east side of the garage. The waste oil was stored and designated as fuel for the heating system during the winter. No evidence of leakage from the drums was observed (Ref. 2).

A small burn pit is located south of the garage. Five rusted, open 55-gallon drums are present in this area. General refuse, such as used automotive oil filters, is occasionally burned inside the drums prior to disposal. Ashes were observed on the ground in this area (Ref. 2).

Salvage Yard

An 80-foot by 30-foot scrap yard is located approximately 100 feet northeast of the garage. The scrap yard contains several abandoned cars and a pair of abandoned steel tanks. The prior use of the tanks is unknown. The tanks were empty at the time of the E & E site visit (Ref. 2).

Crusher-One Automobile Salvage Yard

The 3-acre Crusher-One auto salvage yard is located approximately 100 feet south of the garage. An approximately 4-foot-high wooden fence surrounds this area. Abandoned cars and trailers are stored here prior to being crushed on site and sold for scrap. A mobile automobile crushing machine is occasionally brought to a 50-foot by 50-foot area in the southwest corner of the yard to crush the automobiles for salvage. The unit was not on site at the time of the E & E site visit, and neither stained soils nor evidence of leaked or spilled fluids was observed (Ref. 2).

2.3 SITE OWNERSHIP

Currently, the site is owned by Neilson Real Estate of Norristown, Pennsylvania. Fred Melchiorre has leased the automotive repair garage and burn pit areas since 1955. According to Fred Melchiorre, the site has been owned by Neilson Real Estate since some time prior to 1955. Previous site owners are unknown. The automotive salvage yard has been leased to the proprietors of Crusher-One for approximately one year. The residential property has been leased to various persons since some time prior to 1950. The items in the scrap yard east of the driveway belong to Neilson Real Estate (Ref. 2).

2.4 SITE USE HISTORY

Fred Melchiorre has operated his automotive repair shop since 1955. Prior to 1955, the site was leased by another tenant who reportedly fixed and sold used automobiles. In approximately 1960, Mr. Melchiorre purchased and installed a cold solvent parts cleaner. The nature of the solvent within the unit is not known. Mr. Melchiorre reportedly never drained the solvent from the parts cleaner until 1978. At that time, he hired Safety Kleen to drain the unit and reclaim the solvent. The parts cleaner has been empty since 1978 (Ref. 2).

According to Mr. Melchiorre, the Crusher-One automobile salvage yard was developed in 1992. Currently, the yard is used to store abandoned automobiles and it is used as a staging area for a mobile automobile crusher to prepare the cars for reclamation off site (Ref. 2).

A 1965 aerial photograph of the site indicates that the area which is now the Crusher-One auto salvage yard may have been occupied by abandoned cars. A 1970 aerial photograph

shows this area as vegetated and unused. No other changes in land use on site appear in the aerial photographs (Refs. 3, 4).

2.5 PERMIT AND REGULATORY HISTORY

No records of site inspections by the Pennsylvania Department of Environmental Resources (PADER) or environmental violations at the Fred's Auto site have been found. EPA, PADER, AWC, and CSG are currently investigating homewells on Audubon Road, Egypt Road, and Rittenhouse Road, and municipal wells in the Valley Forge Corporate Center and other areas of Lower Providence Township. TCE, a commonly used industrial solvent, is the primary contaminant of concern detected in these wells.

Groundwater investigations in the site area are summarized below:

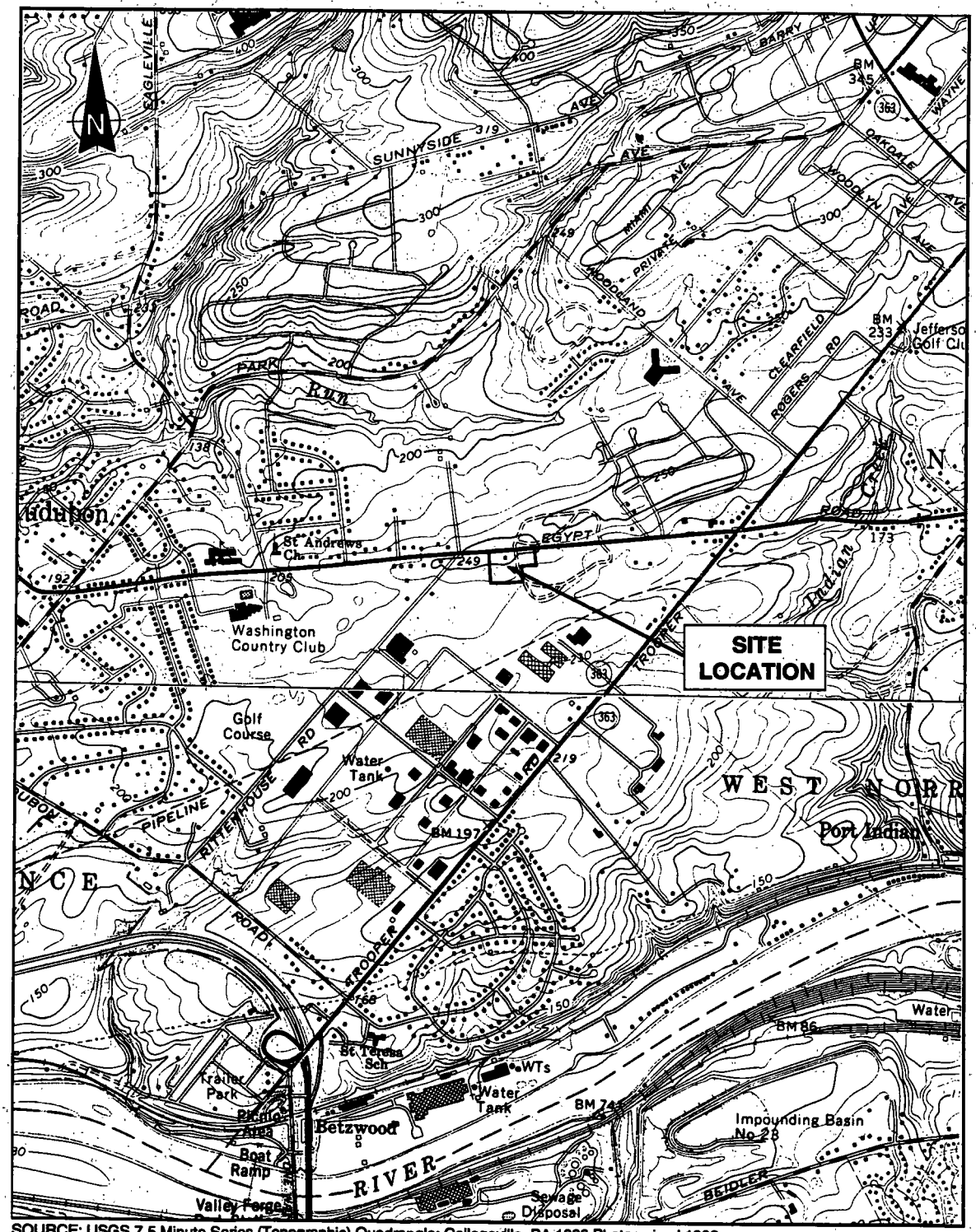
1978	TCE is detected in municipal supply well VFCC-~~2~~4 owned by AWC. PADER determines that the CSG facility located 0.45 mile southwest of the Fred's Auto site is the probable source of TCE.
1984	CSG purchases an air stripper to treat water from AWC well No. ~~VFCC24~~ VFCC-4 and purchases carbon filters to treat water from 24 nearby homewells.
1986	EPA begins an investigation of the CSG site.
1989	The CSG site is included on the NPL for remediation.
1988	TCE is detected in AWC well nos. 6 and 9. These wells are located approximately 0.8 mile north of the CSG site and 0.8 mile northwest of the Fred's Auto site. The source of TCE detected in these wells has not been positively identified (Refs. 1, 5).
1992	A Remedial Investigation and Feasibility Study (RI/FS) conducted by a consultant hired by CSG is completed. The RI/FS determines that groundwater in the vicinity of the CSG site flows south. This suggests that the CSG site may not be the source of TCE detected in AWC well No. 6, No. 9, or in some of the houses on Rittenhouse Road (Refs. 5, 6). (See Appendix D for figures from the RI/FS which illustrates the extent of TCE contamination of drinking water that exceeds the MCL, and for a hypothesized migration route of contaminants from the CSG site.) (Ref. 7).

2.6 REMEDIAL ACTION TO DATE

No remedial actions have been performed at the Fred's Auto site, and no spills or releases of hazardous waste are known to have occurred. Since 1981, EPA, PADER, AWC, and CSG have worked to address TCE contamination of local drinking water supplies.

However, the source of TCE detected in AWC well No. 6 and No. 9 and in some of the houses on Rittenhouse Road has not been positively identified (Refs. 6, 7, 8).

The RI/FS work plan developed by Roy F. Weston, Inc. for CSG included a summary of homewell sample results collected by PADER (see Appendix C). The Fred's Auto site well is not included in this summary. According to Mr. Melchiorre, the on-site well was tested several years ago after TCE was detected in the AWC wells and the on-site well did not show contamination by VOCs; however, he did not retain a copy of the analytical results and cannot recall who collected the sample (Refs. 1, 2, 8).



SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangle: Collegeville, PA 1966 Photorevised 1983, Valley Forge, PA 1966 Photorevised 1981

SCALE 1:24,000

0 ½ 1 Mile

0 .5 1 Kilometer

Figure 2-1 SITE LOCATION MAP, FRED'S AUTO JUNKYARD

ORIGINAL
(Red)

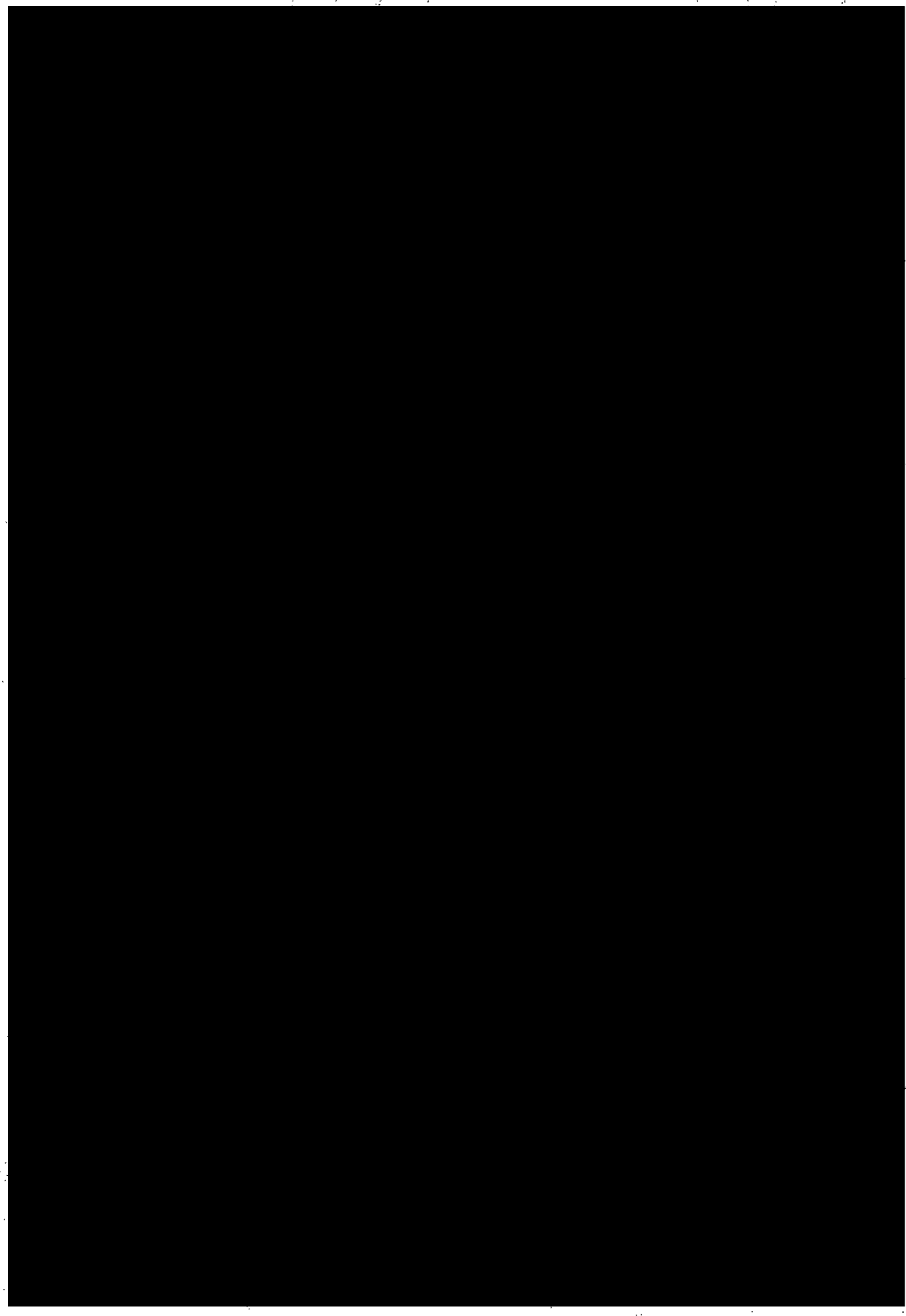
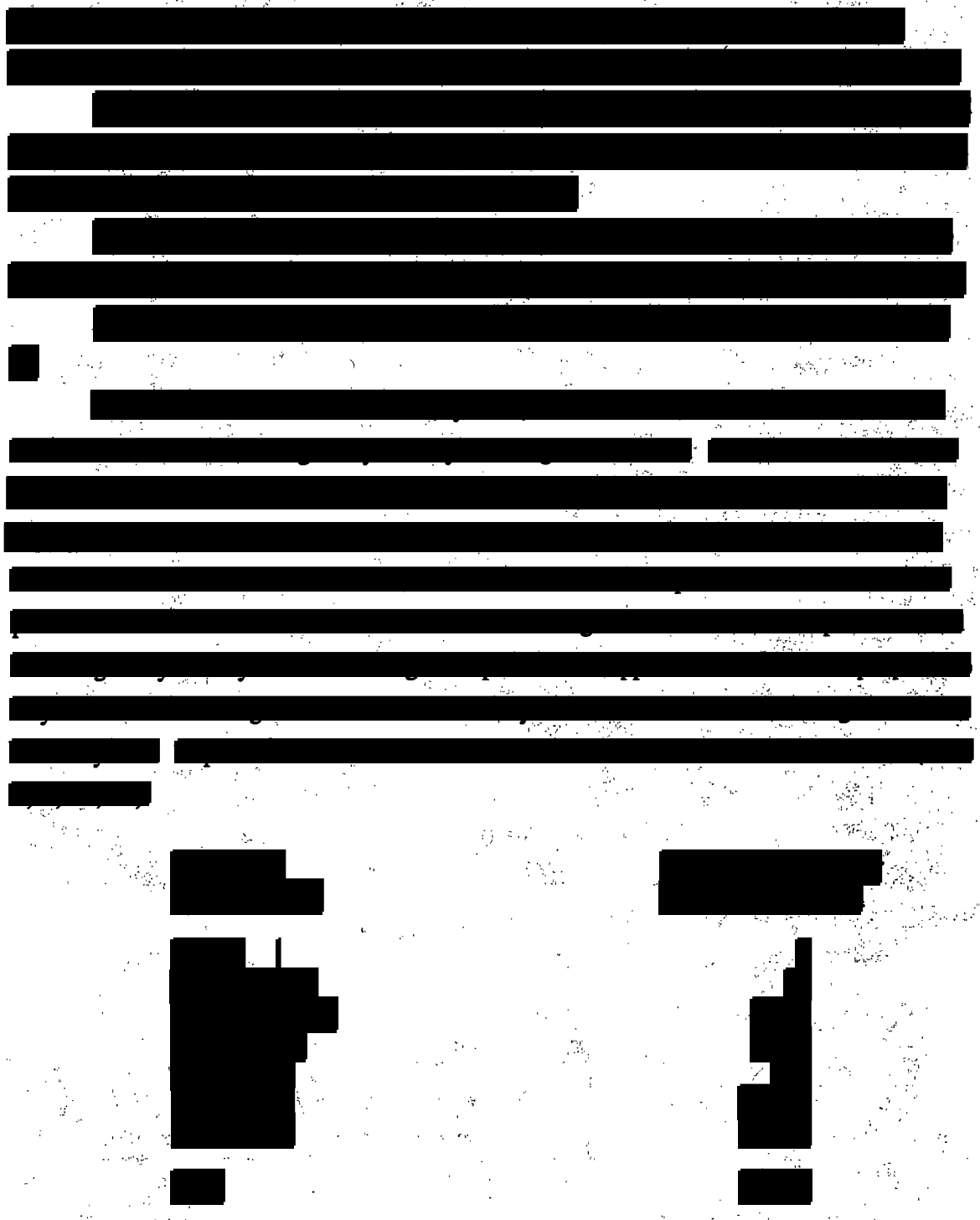


Figure 2-2 SITE LAYOUT MAP, FRED'S AUTO JUNKYARD

3. ENVIRONMENTAL SETTING

3.1 [redacted]

[redacted]



3.2 SURFACE WATER

Drainage from the site flows south by southeast onto the orchard and corn field behind the site, then flows generally eastward and enters Indian Creek approximately 4,500 feet downgradient from the southeast corner of the site. This point is assumed to be the probable point of entry (PPE) of sediment and runoff from the site. Indian Creek flows

approximately 1.1 miles to the Schuylkill River, which flows south and east toward Philadelphia. The 15-mile downstream target distance extends to a location 0.2 mile upstream of the City Avenue Bridge on the Schuylkill River.

Indian Creek and the Schuylkill River are warmwater fisheries. The Schuylkill River provides habitat for migratory fishes. PAWSC maintains a surface water intake on the Schuylkill River approximately three miles downstream from the PPE, on Barbados Island. This intake serves approximately 79,000 residents in Montgomery County. The Schuylkill River has an average discharge of 2,922 cubic feet per second (cfs) measured near the Fairmount Dam in Philadelphia. Discharge information pertaining to Indian Creek is not available (Refs. 1, 2, 19, 20).

3.3 HYDROGEOLOGY

The geologic and hydrogeologic conditions in the study area were researched as part of the site investigation. A preliminary literature review was conducted to determine surface and subsurface geologic conditions, soil character, and the status of groundwater transport and storage.

3.3.1 Geology

The Fred's Auto site is located within the Triassic Lowlands section of the Piedmont physiographic province, near its border with the Piedmont Uplands Section. The rocks of the Triassic section are commonly known as the Newark group, a 16,000- to 20,000-foot section of nonmarine sedimentary rocks and associated intrusive and extrusive basic rocks. The Newark group was deposited in the Newark Basin, which was part of a rift system initiated by the widening of the Atlantic Basin and separation of the continents in Mesozoic time.

The Piedmont Uplands section of the Piedmont physiographic province is present beneath the southern portion of the study area, and it consists of Precambrian- to Ordovician-age metamorphic and igneous rocks. The site area has a dendritic geomorphic drainage pattern and a topography of broad, shallow valleys and rolling hills (Refs. 1, 12, 13).

The site is directly underlain by the Triassic-age Stockton formation. The Stockton formation is composed of a lower arkosic conglomerate member, a middle arkosic sandstone member, and an upper mudstone member. The lower yellow-gray conglomerate deposits consist of poorly sorted, moderately rounded clasts of quartz, quartzite, limestone, and feldspar. The clasts average 1 inch in diameter and are set in a poorly sorted arkosic matrix.

The middle sandstone member is a fine- to medium-grained, light yellowish-gray to pale reddish-brown, fairly well sorted arkosic sandstone. The upper mudstone is reddish- brown in color and is feldspathic. The abundant feldspar in the Stockton formation implies a continuous supply from a soda-rich, metamorphosed Paleozoic source east and south of the Newark Basin. The erosion of these crystalline eastern and southern highlands spread Stockton sediments across the basin, forming extensive flood plain deposits. Fossil fauna such as ferns, conifers, ginkos, mollusks, labyrinthodont amphibians, and phytosaur reptiles suggest an extensive fluvial and flood plain paleoenvironment for the Stockton. The thickness of the formation reaches a maximum of 6,000 feet at the Montgomery-Bucks county line (Refs. 12, 13).

The Stockton formation is overlain by the Triassic-age Lockatong formation, which contacts the Stockton 0.75 mile north of the site. The Lockatong is a dark gray to black argillite with zones of black shale and thin layers of impure calcareous shale. The unit is moderately well bedded with flaggy to thick beds. Joints have a blocky pattern and are moderately well developed, closely spaced, steeply dipping, and open (Refs. 12, 13).

The Triassic Lowlands contact the Piedmont Uplands approximately 2.0 miles south of the site. Although the topography is similar, rock character changes radically. The rocks of the Piedmont Uplands are predominantly metamorphic and igneous schists, quartzites, and granites (Refs. 13, 18).

Discordant, basin-shaped sheets and cross-cutting dikes of diabase intruded the Newark group in late Triassic time; therefore, their stratigraphic position varies throughout the study area. A prominent dike of diabase is located 3.25 miles west of the site. Diabase is dark gray to black, dense, and very fine grained, and consists of 90% to 95% labradorite and augite. These olivine-poor diabase rocks are characteristic of rift valley sequences and were emplaced during episodes of tensional rifting associated with the opening and widening of the Atlantic Basin. The dikes are generally 5 to 100 feet thick, while the sheets are much thicker (Refs. 12, 13).

3.3.2 Soils

Soils on site are classified as Penn-Lann loam with 3% to 8% slope. This soil is formed from weathered red shale, yellowish brown sandstone, and siltstone. Permeability of this soil is moderate to moderately rapid, surface runoff is rapid, and the hazard of erosion is severe (Ref. 17).

3.3.3 Groundwater

In the Stockton formation, the lower conglomerate member and the middle arkosic sandstone member contain primary and secondary openings that provide a moderate to high total effective porosity and permeability. The middle arkosic sandstone has the highest average reported yield, 131 gallons per minute (gpm), and the highest average specific capacity of any of the formation members, 4.8 gpm per foot. The lower conglomerate member has an average specific capacity of 3.1 gpm per foot. The upper mudstone member is too finely grained to allow for permeability sufficient to permit easy circulation of groundwater. Most wells tapping this member obtain water chiefly from fractures and joints. This upper mudstone has an average reported yield of 19 gpm and an average specific capacity of 0.4 gpm per foot. All the formations in the study area are likely to be hydraulically interconnected through fractures and joints (Ref. 12).

The diabase has a very low secondary porosity and a low permeability. Well yields in Montgomery County range from 0.3 to 35 gpm, with a median yield of 5 gpm. Diabase is a poorly yielding aquifer. Most wells obtain their yields from a depth of 50 feet or less, and the maximum depth from which a well in diabase is reported to obtain water is 125 feet. The average specific capacity is less than 1 gpm per foot (Ref. 12).

3.4 CLIMATE AND METEOROLOGY

The Philadelphia city limits are located approximately 10 miles east of the site. Climatological data was obtained for Philadelphia, Pennsylvania, based on the period from 1951 to 1980. According to these data, the average annual temperature is 54.3°F. The coolest month is January, with a mean temperature of 31.2°F; the hottest month is July, with a mean temperature of 76.5°F (Ref. 15). The average annual precipitation is 41.42 inches. The month with highest precipitation is August, with 4.10 inches; the month with lowest precipitation is February, with 2.81 inches. The 2-year, 24-hour rainfall event produces 3.0 inches of rain. The mean annual lake evaporation for the area is 34.5 inches. Therefore, the net precipitation gain is 6.92 inches (Ref. 15).

The annual prevailing wind direction is from the west-southwest. Southwesterly winds prevail during the summer months, while northwesterly winds prevail during the winter. Destructive velocities are comparatively rare, and most gusts occur during summer thunderstorms (Ref. 15).

3.5 LAND USE

The Fred's Auto site is located in an area of mixed residential, commercial, industrial, and agricultural development. The areas immediately surrounding the site consist largely of agricultural properties. The Valley Forge Corporate Center is located approximately 0.25 mile south of the site and contains many small industries and businesses. Two Superfund sites are located nearby: Moyer Landfill, EPA identification No. PAD980508766, is located approximately 2 miles northwest of the site, and CSG, EPA identification No. PAD0937301-74, is located approximately 0.45 mile south-southeast of the site. Areas north and west of the site are dominated by residential and commercial developments (Refs. 1, 2, 15).

3.6 POPULATION DISTRIBUTION

A number of towns and communities in Montgomery and Chester counties are located within the 4-mile radius study area of the site. Population counts within discrete radii identified on the 4-mile radius map appear below (see Figure 3-1):

Radius (Miles)	Approximate Population
On-Site	3
0 to 0.25 mile	46
0.25 to 0.5 mile	450
0.5 to 1 mile	1,600
1 to 2 miles	6,200
2 to 3 miles	8,500
3 to 4 miles	14,400
Total	31,199

The data presented for distance intervals are not cumulative. Population estimates are based on a house count as identified on the 4-mile radius map where possible, multiplied by a persons-per-household average of 2.58 for Montgomery County and 2.73 for Chester County. For communities in which individual houses are not identified, the total population of the affected community was calculated by multiplying the approximate portion of the community area occurring within the distance interval by 2,140.4 persons per square mile, the appropriate population density for Norristown, Pennsylvania. These communities are Trooper, West Norriton, Jeffersonville, Norristown, Brandywine Village, Belmont Terrace, and Bridgeport (Refs. 1, 2, 11).

3.7 CRITICAL ENVIRONMENTS

According to information obtained from the United States Fish and Wildlife Service (USFWS) and the Pennsylvania Game Commission, the following endangered species potentially occur in the study area: the bald eagle (*Haliaeetus leucocephalus*), the peregrine falcon (*Falco peregrinus*), the Redbelly Turtle (*Chrysemys rubiventris*), the Indiana Bat (*Myotis sodalis*), and the small Whorled Pogonia (*Isotria medeoloides*). The bald eagle and the peregrine falcon are transient species (Refs. 16, 14). The Schuylkill River is a warmwater fishery which provides habitat for migratory fishes (Ref. 20).

There are approximately 6.5 acres of wetlands within a 1-mile radius of the site. These wetlands occur along the banks of Indian Creek and are denoted as palustrine, forested, temporary wetlands (Ref. 21). This area receives runoff from the site. There are also some palustrine, broad-leaf, deciduous forested, temporary wetlands located along the Schuylkill River within 15 river miles of the PPE (Refs. 1, 14, 21).

A summary of estimated wetland frontage along the surface water migration pathway and wetland acreage within a 1-mile radius of the site follows (Ref. 21):

Stream Miles from PPE	Wetland Frontage (miles)
0	1.1
1.6	0.15
3.6	0.1
9.3	0.15
10.2	0.4
Total (estimate)	1.9

Distance from Site (Miles)	Wetland Acreage
On site	0
0 to 0.25	0
0.25 to 0.5	0
0.5 to 1.0	6
Total (estimate)	6

4. WASTE TYPES AND QUANTITIES

Waste materials currently generated at the Fred's Auto site include spent automotive motor oil, oil filters, and other miscellaneous wastes generated by Fred's Automotive Repair Service. Spent oil is accumulated in drums on site and burned for heat during the winter. Approximately 70 gallons of waste oil were stored on site during the E & E site visit. Waste oil filters are burned with other refuse in a drum in the burn pit behind the garage.

In approximately 1978, Mr. Melchiorre hired Safety Kleen to reclaim approximately 135 gallons of solvent from a parts cleaner on site. The type of solvent reclaimed from the unit is unknown (Ref. 2).

No waste materials were observed in the area of the Crusher-One automobile salvage yard. A small scrap yard east of the garage contains seven abandoned cars, and two abandoned aboveground metal mixing tanks. No evidence of disposed liquids or buried waste materials were observed on site.

5. FIELD TRIP REPORT

On August 26, 1993, [redacted] and [redacted] of E & E performed a site reconnaissance visit at the Fred's Auto site. They met with Fred Melchiorre of Fred's Autobody and discussed site history and current uses of the site.

The E & E field team walked through all areas of the site to identify potential hazards, site features, and site utilities (see Appendix A). An organic vapor analyzer (OVA) was used to monitor the concentration of VOCs in ambient air, and a radiation meter was used to monitor radionuclides in ambient air. No readings above background were recorded on either instrument (Ref. 2).

Following the site reconnaissance, the E & E field team visited several homeowners in the area to determine homewell locations. Residents at 826, 829, and 835 Rittenhouse Road reported that their wells are contaminated with TCE and are no longer used for drinking water. Each resident reported that a new well had been installed on their property when the Washington County Club golf course wells were constructed. A homewell survey form was distributed to each of these residents, and a survey form was left at 839 Rittenhouse Road. None of the homewell surveys was returned to E & E.

5.1 PERSONAL INTERVIEWS CONDUCTED

5.1.1 Prior to Field Trip

The following persons were interviewed before E & E's August 26, 1993 site visit:

Dave Rittenhouse
Neilson Real Estate
2650 Egypt Road
Norristown, PA 19403
215/631-1100

Ruth Rzepski
USEPA Region III
215/597-3216

Fred Melchiorre
Fred's Auto Service
2650 Egypt Road
Norristown, PA 19403
215/666-6105

5.1.2 During the Site Visit

The following person was interviewed during E & E's August 26, 1993 site visit.

Fred Melchiorre
Fred's Auto Service
2620 Egypt Road
Norristown, PA 19403
215/666-6105

5.1.3 Homewell Survey Form Distribution

Homewell survey forms were distributed to the following addresses during E & E's August 26, 1993 site visit.

[redacted]

[redacted]

[redacted]

[redacted]

6. REFERENCES

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2. Ecology and Environment, Inc. (E & E), August 26, 1993, *Field Logbook for Fred's Auto Junkyard Preliminary Assessment*, PA-3017, Philadelphia, Pennsylvania.

3. Montgomery County Planning Commission, 1985, aerial photograph plate A27/B43.

4. Montgomery County Planning Commission, 1970, aerial photograph, plate A27/B43.

5. Environmental Protection Agency, undated, *Proposed Plan, Commodore Semiconductor/MOS site. Lower Providence Township, Pennsylvania*, Philadelphia, Pennsylvania.

6. Rzepski, Ruth, September 16, 1993, USEPA Remedial Project Manager. telephone conversation with Donovan Robin, Ecology and Environment, Inc., Philadelphia, Pennsylvania.

7. R.F. Weston, Inc., July 1992, *Remedial Investigation and Feasibility Study at the Commodore Semiconductor Facility*, prepared for Commodore Semiconductor Group.

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9. Montgomery County Planning Commission, 1992, Water Supply Facilities, Status Report 1990.

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13. Pennsylvania Department of Environmental Resources (PADER), Bureau of Topographic and Geologic Survey, 1981, *Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania*, Map No. 61.

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19. United States Geological Survey, 1991, *Water Resources Data, Pennsylvania, Water Year 1990, Volume 1*, LeRoyne, Pennsylvania.

20. Pennsylvania Department of Environmental Resources, August 1991, Pennsylvania Code, Title 25: Environmental Resources, Water Quality Standards.

21. United States Department of the Interior, No Date, Wetland Inventory Maps for the Collegeville, Pennsylvania; Valley Forge, Pennsylvania; and Germantown, Pennsylvania quadrangles. Newton Corner, Massachusetts.

22. Polinsek, October 27, 1993, Eagle Realty, Norristown, Pennsylvania, telephone conversation with D. Robin, Ecology and Environment, Inc., Philadelphia, Pennsylvania.

APPENDIX A

PHOTOGRAPHIC LOG

ORIGINAL
(Red)

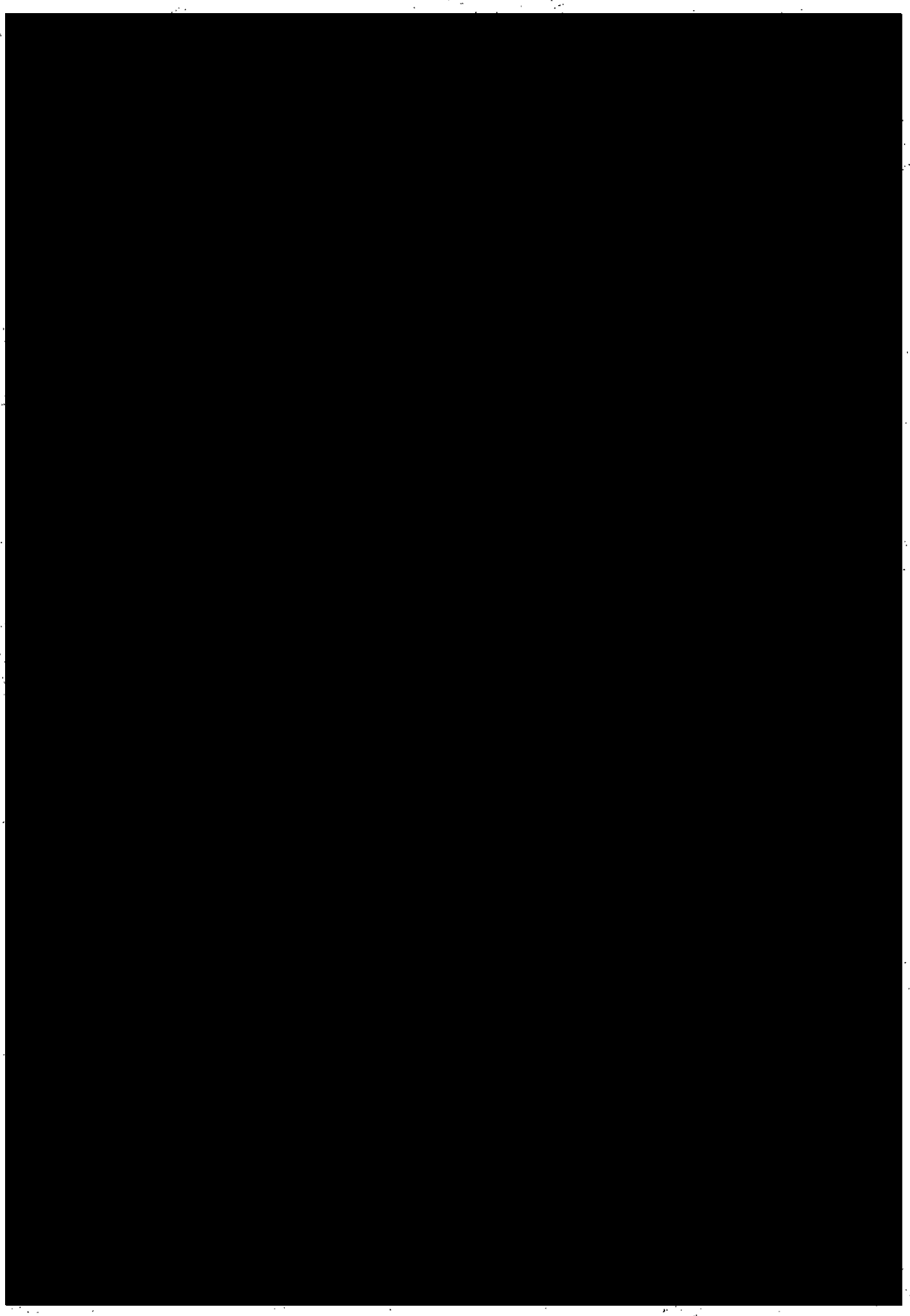


Figure A-1 PHOTO LOCATION MAP, FRED'S AUTO JUNKYARD

ORIGINAL
(Red)

ecology and environment, inc.
PHOTOGRAPHIC RECORD

Client: EPA Region III	E & E Job No.: ZE5629
Site: Fred's Auto Junkyard	
Camera: Make Pentax	SN 4759340 (EPA Decal 897603)
Lens Type 50 mm	SN 367638
	Photographer: J. McCall Date: 8/26/93
	Time: 1138 Frame No.: 4
	Comments*: View of area in which mobile automobile crusher is used.
	*Comments to include location.

ORIGINAL
(Red)

ecology and environment, inc.
PHOTOGRAPHIC RECORD

Client: EPA Region III	E & E Job No.: ZE5629
Site: Fred's Auto Junkyard	
Camera: Make Pentax	SN 4759340 (EPA Decal 897603)
Lens Type 50 mm	SN 367638
	Photographer: J. McCall Date: 8/26/93
	Time: 1138 Frame No.: 7
	Comments*: View of area in which automobile crusher is used.
	*Comments to include location.

ORIGINAL

ecology and environment, inc.
PHOTOGRAPHIC RECORD

Client: EPA Region III	E & E Job No.: ZE5629
Site: Fred's Auto Junkyard	
Camera: Make Pentax	SN 4759340 (EPA Decal 897603)
Lens Type 50 mm	SN 367638
	Photographer: J. McCall Date: 8/26/93
	Time: 1148 Frame No.: 14
	Comments*: Two metal hoppers located on the east side of the site.
	*Comments to include location.

02:ZE5629_D4376-PHOTO-10/01/93-D1

ORIGINAL (Red)

ecology and environment, inc.
PHOTOGRAPHIC RECORD

Client: EPA Region III	E & E Job No.: ZE5629
Site: Fred's Auto Junkyard	
Camera: Make Pentax	SN 4759340 (EPA Decal 897603)
Lens Type 50 mm	SN 367638
	Photographer: J. McCall Date: 8/26/93
	Time: 1153 Frame No.: 16
	Comments*: Several drums and empty tanks located south of the garage. Used automotive oil filters are burned in these drums.
	*Comments to include location.

02:ZE5629_D4376-PHOTO-10/01/93-D1

ORIGINAL (Red)

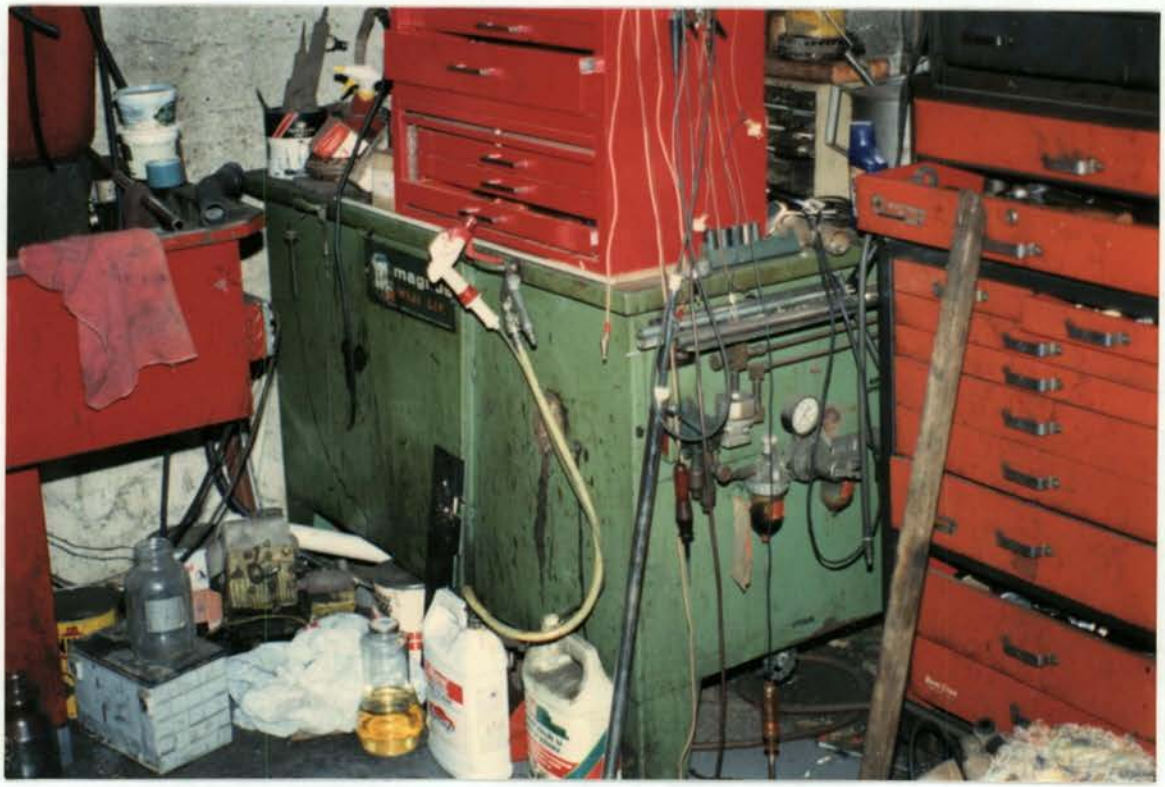
ecology and environment, inc.
PHOTOGRAPHIC RECORD

Client: EPA Region III	E & E Job No.: ZE5629
Site: Fred's Auto Junkyard	
Camera: Make Pentax	SN 4759340 (EPA Decal 897603)
Lens Type 50 mm	SN 367638
	Photographer: J. McCall Date: 8/26/93
	Time: 1154 Frame No.: 17
	Comments*: Drums, heating oil tank, and buckets on east side of the garage. Drums are used to hold waste automotive motor oil or scraps. Buckets are used to collect rain water.
	*Comments to include location.

ORIGINAL (Red)

ecology and environment, inc.
PHOTOGRAPHIC RECORD

Client: EPA Region III	E & E Job No.: ZE5629
Site: Fred's Auto Junkyard	
Camera: Make Pentax	SN 4759340 (EPA Decal 897603)
Lens Type 50 mm	SN 367638
	Photographer: J. McCall Date: 8/26/93
	Time: 1200 Frame No.: 18
	Comments*: View of parts cleaner located in garage (some corrosion on outside). The unit is no longer active.
	*Comments to include location.



02:ZE5629_D4376-PHOTO-10/01/93-D1

C4

APPENDIX B

EPA FORM 2070-12

ORIGINAL (Red)

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 1 - SITE LOCATION AND ASSESSMENT

I. IDENTIFICATION

01 State	02 Site Number
PA-3017	PAD987378213

II. SITE NAME AND LOCATION

01 Site Name (legal, common, or descriptive name of site)	02 Street, Route No., or specific location identifier				
Fred's Auto Junkyard	2650 Egypt Road				
03 City	**04 State**	**05 Zip Code**	**06 County**	**07 County Code**	**08 Cong. Dist.**
Lower Providence Township	PA	19403	Montgomery	091	17

09 Coordinates Latitude	Longitude
40 ° 07 ' 45 "	75 ° 24 ' 45 "

10 Directions to Site (starting from nearest public road)
422 to Trooper Road exit. Take Trooper Road 1.3 miles to Egypt Road, turn left, go 0.3 mile to site.

III. RESPONSIBLE PARTIES

01 Owner (if known)	02 Street (Business, mailing, residential)		
Neilson Real Estate	2620 Egypt Road		
03 City	**04 State**	**06 Zip Code**	**08 Telephone Number**
Norristown	PA	19403	(215) 631-1100
07 Operator (if known and different from owner)	**08 Street (Business, mailing, residential)**		
Fred Melchiorre	2650 Egypt Road		
09 City	**10 State**	**11 Zip Code**	**12 Telephone Number**
Norristown	PA	19403	(215) 666-6105

13 Type of Ownership (check one)
[X] A. Private [ ] B. Federal _____ (agency name) [ ] C. State [ ] D. County [ ] E. Municipal
[ ] F. Other _____ (specify) [ ] G. Unknown

14 Owner/Operator Notification on File (Check all that apply)
[ ] A. RCRA 3001 Date Received __/__/__ Month Day Year [ ] B. Uncontrolled Waste Site (CERCLA 103c) Date Received __/__/__ Month Day Year [X] C. None

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 On-Site Inspection
[X] Yes Date 8/26/93 Month Day Year
[ ] No

By (check all that apply)
[ ] A. EPA [X] B. EPA Contractor [ ] C. State [ ] D. Other Contractor
[ ] E. Local Health Official [ ] F. Other _____ (specify)

Contractor Name(s) Ecology and Environment, Inc., (E & E)

02 Site Status (check one)
[X] A. Active [ ] B. Inactive [ ] C. Unknown

03 Years of Operation 1955 Beginning Year | Active Ending Year [ ] Unknown

04 Description of Substances Possibly Present Known or Alleged
Trichloroethene (TCE) has been detected in nearby homewells. Used motor oil is stored and burned on site.

05 Description of Potential Hazard to Environment and/or Population

V. PRIORITY ASSESSMENT

01 Priority for Inspection (Check one. If high or medium is checked, complete Part 2-Waste Information and Part 3-Description of Hazardous Conditions and Incidents.)
[ ] A. High (Inspection required promptly) [ ] B. Medium (Inspection required) [ ] C. Low (Inspect on time available basis) [ ] D. None (No further action needed - complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 Contact	02 Of (Agency/Organization)	03 Telephone Number		
[redacted]	Ecology and Environment, Inc.	[redacted]		
04 Person Responsible for Assessment	**05 Agency**	**06 Organization**	**07 Telephone Number**	**08 Date**
Michael Giuranna	EPA		(215) 597-3165	__/__/__ Month Day Year

POTENTIAL HAZARDOUS WASTE SITE

PRELIMINARY ASSESSMENT

PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 State	02 Site Number
PA-3017	PAD987378213

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (check all that apply)

- [ ] A. Solid
- [ ] B. Powder, Fines
- [ ] C. Sludge
- [ ] D. Other _____
- [ ] E. Slurry
- [X] F. Liquid
- [ ] G. Gas

02 Waste Quantity at Site (measures of waste quantities must be independent)

Tons _____
Cubic Yards Unknown
No. of Drums 2

03 Waste Characteristics (check all that apply)

- [X] A. Toxic
- [ ] B. Corrosive
- [ ] C. Radioactive
- [ ] D. Persistent
- [ ] E. Soluble
- [ ] F. Infectious
- [X] G. Flammable
- [ ] H. Ignitable
- [ ] I. Highly volatile
- [ ] J. Explosive
- [ ] K. Reactive
- [ ] L. Incompatible
- [ ] M. Not applicable

III. WASTE TYPE

Category	Substance Name	01 Gross Amount	02 Unit of Measure	03 Comments
SLU	Sludge			
OLW	Oily waste	70	Gallons	Used motor oil stored on site.
SOL	Solvents	Unknown		TCE detected in area homewells and community wells.
PSD	Pesticides			
OOC	Other organic chemicals			
IOC	Inorganic chemicals			
ACD	Acids			
BAS	Bases			
MES	Heavy metals			

IV. HAZARDOUS SUBSTANCES (see Appendix for most frequently cited CAS Numbers)

01 Category	02 Substance Name	03 CAS Number	04 Storage/Disposal Method	05 Concentration	06 Measure of Concentration
SOL	TCE	79-01-6	Detected in area homewells and community wells	up to 399	ppb

V. FEEDSTOCKS (see Appendix for CAS Numbers)

Category	01 Feedstock Name	02 CAS Number	Category	01 Feedstock Name	02 CAS Number
FDS	Not Applicable		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc., August 26, 1993, *Site Visit Logbook, Fred's Auto Junkyard Site, PA-3017*, Philadelphia, Pennsylvania.
U.S. EPA, Region III, file information.

ORIGINAL (Red)

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 State: PA-3017

02 Site Number: PAD987378213

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. Groundwater Contamination
02 [X] Observed (date ~1980) [ ] Potential [ ] Alleged
03 Population Potentially Affected: 29,919
04 Narrative Description:

TCE was detected in area homewells and municipal wells. The municipal water supply is treated; area homewell owners have obtained alternate supplies. The source of TCE has not been positively identified.

01 [ ] B. Surface Water Contamination
02 [ ] Observed (date _____) [ ] Potential [ ] Alleged
03 Population Potentially Affected: _____
04 Narrative Description:

01 [ ] C. Contamination of Air
02 [ ] Observed (date _____) [ ] Potential [ ] Alleged
03 Population Potentially Affected: _____
04 Narrative Description:

01 [ ] D. Fire/Explosive Conditions
02 [ ] Observed (date _____) [ ] Potential [ ] Alleged
03 Population Potentially Affected: _____
04 Narrative Description:

01 [ ] E. Direct Contact
02 [ ] Observed (date _____) [ ] Potential [ ] Alleged
03 Population Potentially Affected: _____
04 Narrative Description:

01 [ ] F. Contamination of Soil
02 [ ] Observed (date _____) [ ] Potential [ ] Alleged
03 Area Potentially Affected: _____
04 Narrative Description:

01 [ ] G. Drinking Water Contamination
02 [ ] Observed (date _____) [ ] Potential [ ] Alleged
03 Population Potentially Affected: _____
04 Narrative Description:

01 [X] H. Worker Exposure/Injury
02 [ ] Observed (date _____) [X] Potential [ ] Alleged
03 Workers Potentially Affected: 1
04 Narrative Description:

Burning of waste motor oil and automotive oil filters on site.

01 [ ] I. Population Exposure/Injury
02 [ ] Observed (date _____) [ ] Potential [ ] Alleged
03 Population Potentially Affected: _____
04 Narrative Description:

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 State: PA-3017

02 Site Number: PAD987378213

II. HAZARDOUS CONDITIONS AND INCIDENTS (Cont.)

01 [ ] J. Damage to Flora — 02 [ ] Observed (date _____) — [ ] Potential — [ ] Alleged
04 Narrative Description:

01 [ ] K. Damage to Fauna — 02 [ ] Observed (date _____) — [ ] Potential — [ ] Alleged
04 Narrative Description:

01 [ ] L. Contamination of Food Chain — 02 [ ] Observed (date _____) — [ ] Potential — [ ] Alleged
04 Narrative Description:

01 [ ] M. Unstable Containment of Wastes (spills/runoff/standing liquids, leaking drums) — 02 [ ] Observed (date _____) — [ ] Potential — [ ] Alleged
03 Population Potentially Affected: _____
04 Narrative Description:

01 [ ] N. Damage to Off-site Property — 02 [ ] Observed (date _____) — [ ] Potential — [ ] Alleged
04 Narrative Description:

01 [ ] O. Contamination of Sewers, Storm Drains, WWTPs — 02 [ ] Observed (date _____) — [ ] Potential — [ ] Alleged
04 Narrative Description:

01 [ ] P. Illegal/Unauthorized Dumping — 02 [ ] Observed (date _____) — [ ] Potential — [ ] Alleged
04 Narrative Description:

05 Description of Any Other Known, Potential, or Alleged Hazards

III. TOTAL POPULATION POTENTIALLY AFFECTED 29,919

IV. COMMENTS

The source of TCE detected in some area homewells and municipal wells has not been positively identified. Population potentially affected includes all persons within 4 miles of the site who use groundwater as a source of potable water.

V. SOURCES OF INFORMATION (cite specific references, e.g., state files, sample analysis, reports)

U.S. EPA Region III, file information.

APPENDIX C

ANALYTICAL RESULTS FOR AREA HOMEWELLS

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989
[Concentrations in parts per billion.]

Well Location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	1.3	<1.0	NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	ND	ND	12.0	4.8	ND	ND	ND	ND	ND	ND	ND	ND	20.0	ND	ND	ND	1.0
10/14/87	<1.0		6.0		<1.0		ND		<1.0		ND		40.0		ND		1.0
1/13/88	<1.0		12.0		1.0		ND		1.0		1.0		37.0		ND		1.0
7/19/88	ND		12.0		ND		ND		ND		ND		39.0		ND		1.0
11/08/88	ND		2.3		ND		ND		ND		ND		26.0		ND		1.0
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	1.4		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	<1.0	1.3	58.0	ND	4.2	ND	ND	2.1	1.5	ND	ND	ND	6.7	ND	ND	ND	1.0
10/14/87	<1.0		45.0		2.0		ND		<1.0		ND		7.0		ND		1.0
1/13/88	1.0		35.0		3.0		3.0		1.0		<1.0		13.0		ND		1.0
7/19/88	ND		30.0		ND		ND		ND		ND		9.9		ND		1.0
11/08/88	ND	ND	22.0	21.0	1.2	1.0	ND	ND	ND	ND	ND	ND	7.8	7.2	ND	ND	1.0
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	<1.0	ND	12.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	15.0	ND	ND	ND	1.0
10/14/87	<1.0		26.0		<1.0		ND		<1.0		ND		35.0		ND		1.0
1/13/88	1.0		24.0		1.0		<1.0		2.0		4.0		81.0		ND		1.0
7/19/88	ND		57.0		ND		ND		2.5		ND		63.0		ND		1.0; 50.0 chlor.
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		

Notes: in, out - influent and effluent samples
<1.0, BMDL, J - Present below quantitation limit.
The quantitation limit was raised for diluted samples.
NR - Not requested.
NS - Not sampled.
(F) Filter installed by EMS Resource Group for CSG
(f) - filter installed by homeowner
ND - Not detected at quantitation limit.

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989

[Concentrations in parts per billion.]

Well Location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	1.6		NR		NR		NR		NR		NR		NR		NR		
6/04/87	ND	ND	13.0	2.9	<1.0	ND	ND	ND	ND	ND	ND	ND	26.0	2.0	ND	ND	1.0
10/14/87	<1.0		22.0		<1.0		ND		<1.0				25.0		ND		1.0
1/13/88	<1.0		<1.0		<1.0		ND		<1.0		<1.0		2.0		ND		1.0
7/19/88	ND		42.0		ND		ND		1.9		ND		91.0		ND		1.0; 20.0 chlor.
11/08/88	ND	ND	160.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	450.0	24.0	ND	ND	10.0
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	6.1		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	1.6	ND	1.6	<1.0	ND	ND	ND	ND	1.7	ND	ND	ND	7.4	ND	ND	ND	1.0
10/14/87	1.0		1.0		<1.0		ND		<1.0		1.0		5.0		ND		1.0
1/13/88	2.0		2.0		<1.0		<1.0		2.0		1.0		12.0		ND		1.0
7/19/88	.75J		2.6		ND		ND		2.9		ND		19.0		ND		1.0
11/10/88	1.3	1.1	1.5	1.3	ND	ND	1.9	ND	ND	ND	ND	ND	15.0	14.0	ND	ND	1.0
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	ND	ND	1.6	1.6	ND	ND	ND	ND	ND	ND	ND	ND	3.9	ND	ND	ND	1.0
10/14/87	<1.0		<1.0		<1.0		ND		<1.0		ND		1.0		ND		1.0
[redacted]3/88	1.0		<1.0		<1.0		ND		<1.0		<1.0		3.0		ND		1.0
[redacted]8/88	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		

Notes: in, out - influent and effluent samples
<1.0, BMDL, J - Present below quantitation limit.
The quantitation limit was raised for diluted samples.
NR - Not requested.
NS - Not sampled.
(F) - Filter installed by EMS Resource Group for CSG
(f) - filter installed by homeowner
ND - Not detected at quantitation limit.

1.1-63

C-4

0029

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989
(Concentrations in parts per billion.)

Well Location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
3/03/86	ND		ND		NR		ND		NR		NR		NR		NR		1.0
6/23/86	ND		ND		NR		ND		NR		NR		NR		NR		5.0
10/23/86	ND		ND		ND		ND		ND		ND		ND		ND		1.0
6/04/87	ND	ND	ND	ND	<1.0	ND	ND	ND	ND	ND	ND	ND	4.6	2.6	ND	ND	1.0
10/14/87	ND		<1.0		ND		ND		ND		ND		2.0		ND		1.0
1/13/88	<1.0		<1.0		<1.0		ND		<1.0		<1.0		3.0		ND		1.0
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	ND	<1.0	1.3	ND	ND	1.0	ND		ND		ND		3.9		ND		1.0
10/14/87	ND		<1.0		<1.0		ND		<1.0		ND		2.0		ND		1.0
1/13/88	ND		<1.0		<1.0		ND		<1.0		<1.0		3.0		ND		1.0
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		

Notes: in, out - influent and effluent samples
<1.0, BMDL, J - Present below quantitation limit.
The quantitation limit was raised for diluted samples.
NR - Not requested.
NS - Not sampled.
(F) - Filter installed by EMS Resource Group for CSG
(f) - filter installed by homeowner
ND - Not detected at quantitation limit.

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989
[Concentrations in parts per billion.]

Well Location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
3/03/86	ND		ND		NR		ND		NR		NR		NR		NR		1.0
6/23/86	ND		ND		NR		ND		NR		NR		NR		NR		5.0
10/23/86	ND		ND		ND		ND		ND		ND		ND		ND		1.0
6/04/87	ND		ND		ND		ND		ND		ND		2.4		ND		1.0
10/14/87	ND		ND		ND		ND		ND		ND		1.0		ND		1.0
1/13/88	<1.0		14.0		1.0		ND		1.0		1.0		39.0		ND		1.0
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	8.0		NR		NR		NR		NR		NR		NR		NR		1.0
3/03/86	ND		ND		NR		ND		NR		NR		NR		NR		1.0
6/23/86	ND		NR		NR		NR		NR		NR		NR		NR		5.0
6/04/87	<1.0	ND	2.9	2.4	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
10/14/87	2.0		<1.0		ND		<1.0		ND		ND		<1.0		ND		1.0
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/06/89	ND		ND		ND		ND		ND		ND		ND		ND		1.0
[redacted]																	
9/15/84	NS		NS		NS		NS		NS		NS		NS		NS		
6/04/87	2.0	ND	<1.0	ND	ND	ND	ND	ND	ND	ND	ND	<1.0	ND	ND	ND	ND	1.0
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/06/89	1.3		ND		ND		3.1		ND		ND		ND		ND		1.0
[redacted]*																	
9/15/84	4.6		NR*		NR		NR		NR		NR		NR		NR		1.0
6/04/87	1.3	ND	ND	<1.0	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/07/89	2.0		14.0		ND		ND		ND		ND		ND		ND		1.0

Notes: in, out - influent and effluent samples
<1.0, BMDL, J - Present below quantitation limit.
The quantitation limit was raised for diluted samples.
NR - Not requested.
NS - Not sampled.
(F) - Filter installed by EMS Resource Group for CSG; *=absent as of March 1989
(f) - filter installed by homeowner; f1-softener
ND - Not detected at quantitation limit.

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989

[Concentrations in parts per billion.]

Well Location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	8.7		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	ND	ND	4.6	ND	ND	ND	2.4	ND	ND	ND	ND	ND	1.9	3.3	ND	ND	1.0
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/21/88	ND		ND		ND		ND		ND		ND		ND		ND		1.0
11/10/88	ND		ND		ND		ND		ND		ND		ND		ND		1.0
3/07/89	1.8		ND		ND		3.4		ND		ND		ND		ND		1.0
[redacted]																	
9/15/84	3.2	<1.0	NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/21/88	3.4		ND		ND		9.9		ND		ND		ND		ND		1.0
11/08/88	4.5		ND		ND		6.3		ND		ND		ND		ND		1.0
3/08/89	5.3		2.7		ND		6.6		ND		ND		ND		ND		1.0
[redacted]																	
9/15/84	34.0	<1.0	NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	<1.0	ND	2.9	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	1.0
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/08/89	2.3		ND		ND		3.5		ND		ND		ND		ND		1.0
[redacted]																	
9/15/84	31.0	<1.0	NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	ND		ND		ND		1.1		ND		ND		ND		ND		1.0
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/07/89	ND		ND		ND		ND		ND		ND		ND		ND		1.0
[redacted]																	
9/15/84	8.9		NR		NR		NR		NR		NR		NR		NR		1.0
3/03/86	6.0		ND		NR		ND		NR		NR		NR		NR		1.0
[redacted]/23/86	ND		<5.0		NR		<5.0		NR		NR		NR		NR		5.0
[redacted]/23/86	ND		ND		ND		ND		ND		ND		ND		ND		1.0
[redacted]/04/87	1.6	ND	<1.0	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
[redacted]/14/87	1.0		<1.0		ND		1.0		ND		ND		<1.0		ND		1.0
[redacted]/13/88	1.0		<1.0		ND		1.0		ND		ND		ND		ND		1.0
[redacted]/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]/03/89	NS		NS		NS		NS		NS		NS		NS		NS		

Notes: in, out - influent and effluent samples.
<1.0, BMDL, J - Present below quantitation limit.
The quantitation limit was raised for diluted samples.
NR - Not requested.
NS - Not sampled.
(F) - Filter installed by EMS Resource Group for CSG
(f) - filter installed by homeowner
ND - Not detected at quantitation limit.

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989
(Concentrations in parts per billion.)

Well Location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
3/03/86	ND		ND		NR		ND		NR		NR		NR		NR		1.0
6/23/86	ND		ND		NR		ND		NR		NR		NR		NR		5.0
10/23/86	ND		ND		ND		ND		ND		ND		ND		ND		1.0
6/04/87	ND		ND		ND		ND		ND		ND		ND		ND		1.0
10/14/87	ND		<1.0		ND		ND		ND		ND		<1.0		ND		1.0
1/13/88	<1.0		<1.0		ND		ND		ND		ND		ND		ND		1.0
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		

Notes: in, out - influent and effluent samples
<1.0, BMDL, J - Present below quantitation limit.
The quantitation limit was raised for diluted samples.
NR - Not requested.
NS - Not sampled.
(F) - Filter installed by EMS Resource Group for CSG
(f) - filter installed by homeowner; f1-softener
ND - Not detected at quantitation limit.

1.1-67
C-8

AR300333

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989
[Concentrations in parts per billion.]

Well Location/ sampling date	TCE in	TCE out	TCA in	TCA out	1,1-DCE in	1,1-DCE out	TR 1,2-DCE in	TR 1,2-DCE out	1,1-DCA in	1,1-DCA out	PCE in	PCE out	CHLOROFORM in	CHLOROFORM out	1,2-DCA in	1,2-DCA out	Quantitation Limit
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		

Notes: in, out - influent and effluent samples
<1.0, BMDL, J - Present below quantitation limit.
The quantitation limit was raised for diluted samples.
NR - Not requested.
NS - Not sampled.
(F) - Filter installed by EMS Resource Group for CSG
(f) - filter installed by homeowner; f1-softener; f2-charcoal; f3-neutralizer
ND - Not detected at quantitation limit.

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989
[Concentrations in parts per billion.]

Well location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
3/15/89	ND		ND		ND		ND		ND		ND		ND		ND		1.0
[redacted]																	
9/15/84	23.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	7.9	2.4	NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		Denied access
[redacted]																	
9/15/84	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/86	ND		12.0		NR		ND		NR		NR		NR		NR		1.0
6/23/86	ND		<5.0		NR		ND		NR		NR		NR		NR		5.0
10/23/86	ND		ND		ND		ND		ND		ND		ND		ND		1.0
6/04/87	ND		4.1		ND		ND		ND		ND		<1.0		ND		1.0
10/14/87	ND		1.0		ND		ND		ND		ND		<1.0		ND		1.0
1/13/88	<1.0		5.0		<1.0		ND		ND		ND		<1.0		ND		1.0
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		

Notes:
in, out - influent and effluent samples
<1.0, BMDL, J - Present below quantitation limit. The quantitation limit was raised for diluted samples.
NR - Not requested.
NS - Not sampled.
(F) - Filter installed by EMS Resource Group for CSG
(f) - filter installed by homeowner; f1-softener
ND - Not detected at quantitation limit.

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989
(Concentrations in parts per billion.)

Well Location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
3/03/86	ND		ND		NR		ND		NR		NR		NR		NR		1.0
6/23/86	ND		NR		NR		NR		NR		NR		NR		NR		5.0
6/04/87		ND		ND		ND		ND		ND		ND		ND		ND	1.0
10/14/87	ND		<1.0		ND		ND		ND		ND		<1.0		ND		1.0
1/13/88	<1.0		<1.0		ND		ND		ND		ND		<1.0		ND		1.0
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	NO RESULTS		NS		NS		NS		NS		NS		NS		NS		
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		

Notes:
in, out - influent and effluent samples
<1.0, BMDL, J - Present below quantitation limit.
The quantitation limit was raised for diluted samples.
NR - Not requested.
NS - Not sampled.
(F) - Filter installed by EMS Resource Group for CSG
(f) - filter installed by homeowner; f4-conditioner
ND - Not detected at quantitation limit.

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989
(Concentrations in parts per billion.)

Well Location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		1.0
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	<1.0		NR		NR		NR		NR		NR		NR		NR		1.0
3/03/86	5.0		ND		NR		ND		NR		NR		NR		NR		1.0
6/23/86	ND		<5.0		NR		ND		NR		NR		NR		NR		5.0
10/23/86	ND		ND		ND		ND		ND		ND		ND		ND		1.0
6/04/87	ND		ND		ND		ND		ND		ND		ND		ND		1.0
10/14/87	<1.0		ND		ND		ND		ND		ND		ND		ND		1.0
1/13/88	1.0		<1.0		<1.0		<1.0		ND		<1.0		<1.0		ND		1.0
7/18/88	NS		NS		NS		NS		NS		NS		NS		NS		
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/03/89	NS		NS		NS		NS		NS		NS		NS		NS		
[redacted]																	
9/15/84	140.0		NR		NR		NR		NR		NR		NR		NR		1.0
3/03/86	173.0		170.0		NR		ND		NR		NR		NR		NR		1.0
6/23/86	59.0		44.0		NR		ND		NR		NR		NR		NR		5.0
6/04/87	70.0	1.8	80.0	2.3	17.0	<1.0	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND	1.0
10/14/87	74.0		80.0		13.0		ND		1.0		<1.0		ND		ND		1.0
1/13/88	52.0		59.0		12.0		<1.0		2.0		<1.0		<1.0		ND		1.0
7/19/88	90.0		85.0		5.5		ND		6.5		ND		ND		ND		1.0; 20.0, TCE, TCA
11/08/88	78.0	ND	66.0	51.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	400.0	450.0	10.0
3/03/89	62.0		46.0		18.0		ND		2.6		ND		ND		ND		1.0; 10.0, TCE, TCA
[redacted]																	
9/15/84	210.0	<1.0	NR		NR		NR		NR		NR		NR		NR		1.0
10/23/86	399.0	450.0	241.0	311.0	ND	35.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
6/04/87	NS		NS		NS		NS		NS		NS		NS		NS		
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	103.0	48.0	160.0	76.0	31.0	11.0	<1.0	<1.0	4.0	2.0	1.0	<1.0	<1.0	ND	<1.0	ND	1.0
3/12/88		72.0		140.0		35.0		ND		4.0		<1.0		ND		<1.0	1.0
7/20/88	230.0		300.0		17.0		ND		19.0		ND		ND		ND		10.0
11/08/88	NS		NS		NS		NS		NS		NS		NS		NS		
3/04/89	91.0		99.0		28.0		ND		12.0		ND		ND		ND		10.0

Notes: in, out - influent and effluent samples
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The quantitation limit was raised for diluted samples.
NR - Not requested.
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(f) - filter installed by homeowner
ND - Not detected at quantitation limit.

SUMMARY OF RESIDENTIAL GROUNDWATER QUALITY ANALYSES, COMMODORE SITE, PA 1984-1989
[Concentrations in parts per billion.]

Well Location/ sampling date	TCE		TCA		1,1-DCE		TR 1,2-DCE		1,1-DCA		PCE		CHLOROFORM		1,2-DCA		Quantitation Limit
	in	out	in	out	in	out	in	out	in	out	in	out	in	out	in	out	
[redacted]																	
9/15/84	35.0	<1.0	NR		NR		NR		NR		NR		NR		NR		1.0
3/03/86	15.0		ND		NR		20.0		NR		NR		NR		NR		1.0
6/04/87	ND	ND	<1.0	ND	ND	ND	7.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
10/14/87	7.0		<1.0		<1.0		5.0		<1.0		<1.0		ND		ND		1.0
1/13/88	8.0		<1.0		<1.0		6.0		<1.0		<1.0		ND		ND		1.0
7/19/88	4.7		ND		ND		12.0		ND		ND		ND		ND		1.0
11/08/88	4.6	ND	ND	ND	ND	ND	4.9	4.7	ND	ND	ND	ND	ND	ND	2.0	ND	1.0
3/04/89	5.6		ND		ND		11.0		ND		ND		ND		ND		1.0
[redacted]																	
9/15/84	4.4		NR		NR		NR		NR		NR		NR		NR		1.0
6/04/87	2.3	ND	2.6	2.1	ND	ND	4.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0
10/14/87	NS		NS		NS		NS		NS		NS		NS		NS		
1/13/88	NS		NS		NS		NS		NS		NS		NS		NS		
7/19/88	ND		ND		ND		ND		ND		ND		ND		ND		1.0
11/08/88	1.0	ND	ND	1.2	ND	ND	2.4	2.4	ND	ND	ND	ND	ND	ND	ND	ND	1.0
3/06/89	2.5		ND		ND		3.9		ND		ND		ND		ND		1.0

Notes: in, out - influent and effluent samples
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ecology and environment, inc.
140 WEST GERMANTOWN PIKE
PLYMOUTH MEETING, PENNSYLVANIA 19462

ORIGINAL (Red)

FIGURE 3.1

FOUR MILE RADIUS MAP

FREDS AUTO JUNKYARD

PA-3017